Climate System and Water Cycle

# YOSHIMURA LAB.

Climate System and Water Cycle

Department of Human and Social Systems Large-scale Experiment and Advanced-analysis Platform

Isotope Meteorology

Department of Civil Engineering, Graduate School of Engineering /

Department of Natural Environmental Studies, Graduate School of Frontier Sciencesl

Y-Lab contributes to the society by understanding of climate and water cycle.



https://isotope.iis.u-tokyo.ac.jp

We study the Earth from viewpoints of climate, water, and isotopes to make contributions to understanding of climate system and prevention of water-related disasters.

## Where we are

Y-Lab is located in the LEAP of Institute of Industrial Science in Kashiwa campus.



### Office

There are some opportunities which Y-lab members can gather and discuss intensively.

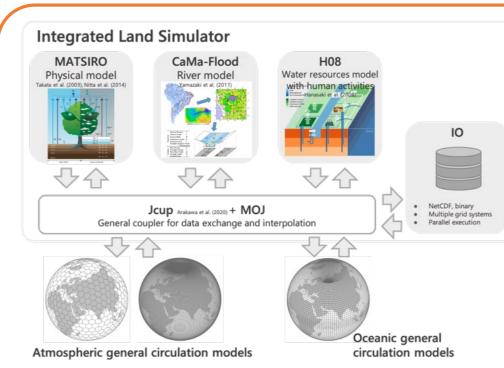


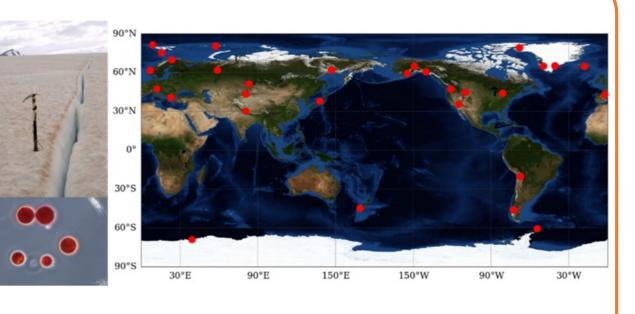
**Reception Space** Lab members often take a rest and chat with others here.



# What we do

### Climate





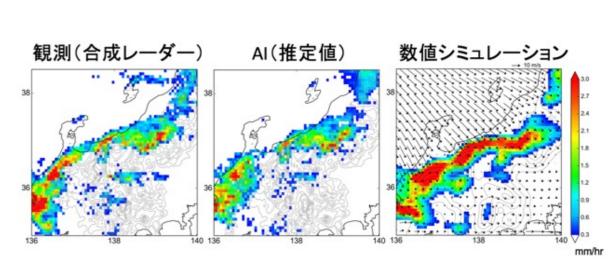
Integrated Land Simulator(ILS)

Developing a snow algae model to reconstruct blooming worldwide

Provision of useful information for climate change through understanding climate system using model development and its application

## Water Cycle



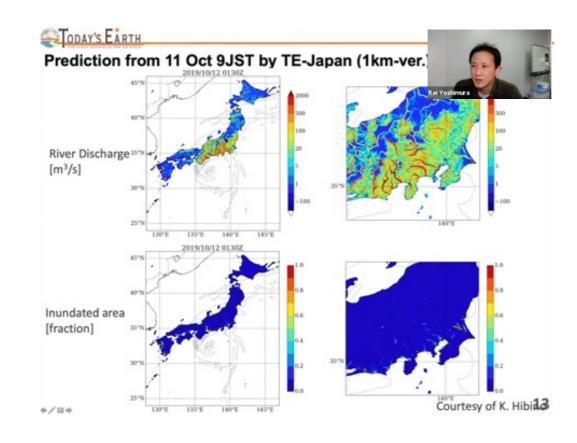




#### **Open Campus**

Visualization of water cycle with spherical display helps visitors understand research topics.

**Isotope Experiment Room** Y-Lab is fully equipped with experimental instruments including mass and laser spectrometers.



### **Academic Conferences**

Y-Lab members actively make presentations at academic conferences and share our results.



#### **International Members**

Members from various countries have lively discussions on their research topics.

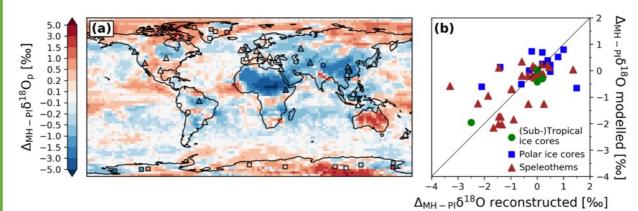
Real-time numerical flood prediction by "Today's Earth" system

Estimation of local precipitation based on numerical simulation with AI

**Contribution to world water resource management and disaster** mitigation through representation and prediction of water cycle based on model development and its application

### Isotope

Modelled  $\delta^{18}$ O in precipitation and comparison with data (MIROC5-iso)



In Antarctica (2003)

In the past climate (~6,000 years ago)

**Development of methods for climate reconstruction and** improvement of model accuracy with isotope and seeking better understanding of climate system

